the urethral glands. This is immediately followed by silver. If the morning drop is persistent after a course of silver up to 5%, we commence with ½% again and run up slowly as before. We have found the use of varying strengths of silver productive of better results than the dependence on any one, and this salt in the chronic stage seems to give better results than the albuminates, possibly owing to its more astringent properties.

After say one or two courses of silver and vaccine as described, the patient will usually be fairly free from subjective symptoms, exhibiting practically only a chemical urethrorrhea. We then omit local treatment save once a week more or less, and then use a reasonably strong silver solution instillation as a sort of urethral "harrow." By the time the patient is getting large doses of vaccine, we are ready to entirely discontinue urethral medication, even if the case is not showing evidences of a cure, which in properly selected cases, i. e., not acute, is a small percentage since the advent of vaccine therapy. In this event we pause an appropriate time with an occasional irrigation, and commence once more as in the first described method. So far we have not failed to get what we consider a cure in all those cases we have treated ourselves from the time of infection.

The complications of urethritis anterior and posterior which most commonly are met with and of which we will speak briefly relative to treatment are, periurethral abscess, prostatitis, seminal-vesiculitis, epididymitis, orchitis, cystitis, and rheumatism.

Briefly the most successful treatment of them one and all is the same, namely, the vaccines as soon as the florid stage is passed. Periurethral abscesses formerly surgically treated by us are now clearing up nicely under vaccines. In nearly every case of periurethral abscess operated upon by us, while the original condition was cured a urinary fistula remained which necessitated a secondary operation to cure the fistula. Acute prostatitis and vesiculitis calls for symptomatic relief in the way of rectal suppositories of opium, hot enemata, diuretics, preferably alkaline, and great patience to await the stage of resolution. When the chronic stage arrives, in addition to the treatment before described under posterior urethritis, we use prostatic massage twice a week prior to the patient voiding his urine. The same remarks apply to the seminal vesicles. In one very severe case of seminal vesiculitis one of us (Loos) in addition did a double vasectomy, and with a small needle introduced into the vesical end of the vas, irrigated the vesicles daily with argyrol solution 10%, eventually getting a cure.

Epididymitis and orchitis are to be treated by rest, elevation and heat or ice in the acute stage, with also, as in nearly all complications of urethritis, a cessation of local treatment to the urethra pro tem. Opiates as needed to produce comfort are certainly indicated. Frequently here we must resort to surgery to liberate pus—and a plain incision, *low* to allow good drainage is our choice. Later, as before stated, the vaccines seem to act magically on these cases.

Gonorrheal rheumatism has given us more annoyance than any of the other complications of specific urethritis, and not till we had the vaccines did we feel sure that we could get results in their treatment. The cardinal points to be remembered here are, rest in bed, liquid diet, temporary cessation of urethral local applications, aspirin internally, unguentum methyl-salicylate compound to the affected joints, with hot applications or ice, whichever gives most comfort, and after the first few days the vaccine indicated by the urethral infection.

The Bier bandage, applied for half hour intervals, daily, is of the greatest help in clearing up the articular condition. To obtain the best results from this method of treatment it is better for the attending physician, or a well instructed nurse, to apply the bandage, because the object desired is a venous congestion, which must be severe enough by causing the venous stasis and yet should the bandage be applied too tightly, the arteries also are occluded and we thwart our purpose. The arterial pulse must always be palpable at a point distal to the site of the bandage. The patient is unable to determine these precautions himself.

Since the interesting and instructive paper read last meeting by Dr. Clark the advisability of further reference to the prostate and seminal vesicles seems advisable.

In the adenomatous enlargement he referred to he advised against massage and spoke of the possible hastening by such an ill-advised treatment of fibrosis in the gland, thus further adding to urethral occlusion by pressure. This is not to be confused with the condition we here deal with, viz., an infection and more or less acute inflammation of the gland or vesicles. It is imperative that we aid in the expulsion of effete material from the deep recesses of these parts, and in massage we have a very fairly reliable method of emptying out a certain amount of infective material and at the same time aiding in absorption of other matter out of place, and in this type of case not only does the smear prove the expression to be of an infective nature, but those cases well handled with a combination of massage and instillation, and vaccines give better and more lasting results than those treated without massage. There is less danger, in other words, of the retention of infection, or, as we hear it called, "latent infection."

THE TREATMENT OF SPINAL CURVATURE.*

By JAMES T. WATKINS, M. D., San Francisco.

No group of cases have proved more baffling both to the general practitioner and the orthopedic specialist than have the various types of so-called spinal curvature. The history of the struggle that medical men have, from earliest times, waged with this group of disorders, is replete with interest and throws no little light upon the difficulties which beset those who would attempt to combat them.

That the Greeks recognized spinal curvature

* Read before the Alameda County Medical Society, September, 1911.

and attempted to correct it is set forth with sufficient clearness in the writings of Hippocrates. One cannot be absolutely certain, however, that they differentiated between spinal curvature and tuberculosis of the spine; that is, between scoliosis and true spondylitis. Both conditions they attempted to treat by forcibly correcting the deformity and subsequently strapping the patient upon a board.

During the Dark Ages, orthopedics would appear to have suffered an eclipse. It was indeed a lost art. A majority of the jesters, without one or more of whom no court, nor noble's, nor franklin's household was complete, were almost certainly scoliotics. At a later date you will recall that Shakespeare lays great emphasis upon the high shoulder and hunchback of Richard III. Here, too, we are dealing with a manifestation of scoliosis. I might say by way of parenthesis that Shakespeare wrote this at a moment when the reigning house, that of Tudor, was one whose founder had overthrown the last Plantagenet and the playwright was naturally disposed to make as much as possible of the latter's defects. Contemporary historians, on the other hand, represent Richard and his elder brother Edward IV as being men of a more than goodly presence.

In America the first reference to the treatment, or better, the prevention of spinal curvature, appears in the accounts we have of the method of caring for boarding school girls a hundred years ago. There are doubtless among my hearers, those who will recall grandmothers or grandaunts who always sat rigidly erect, disdaining the support of a chairback. My own grandmother has often told me how she and her schoolmates were required to sit or stand with their backs strapped to boards, so many hours a day, in order that they might conform to the then ideals of maidenly symmetry. Speaking from memory, I might quote to you that stanza from Dr. Oliver Wendell Holmes's "Verses to My Aunt":

"They strapped her back against a board,
To make her straight and tall,
They pinched her toes, they starved her down,
To make her light and small."

Except for some exceedingly astute observations of Bigelow, which passed unnoticed, we have record of nothing definite in the study or treatment of Scoliosis, until the elder Sayer introduced his plaster of paris corset in the late seventies. The use of plaster of paris as employed by Dr. Sayer may be said to have worked a reform in all branches of orthopedic surgery. Shortly after this —I shall not cumber your minds with dates— Adolph Lorenz, working in the vast pathological laboratories of the Allgemeinenkrankenhaus at Vienna, described, first the anatomy of scoliosis and evolved, by logical deduction, a system of exercises calculated to combat the development of this deformity. Adolph Lorenz's teacher,—Albert, —subsequently described further changes in the anatomy. With these studies in mind, Wolff of Berlin, shortly afterward evolved his now famous "law of the transformation of bone." Before stating this law I would remind you of what Meyer, the mathematician of Zurich, pointed out nearly a century ago; namely, that a bone presents in its internal architecture that construction which best fits it to support the strains and thrusts to which its function subjects it. Wolff showed that any change in the configuration of that bone will result in a re-arrangement of its internal architecture to enable it again to best meet the requirements made of it in its changed condition.

All of these writers employed practically the same methods of treatment which Lorenz had made popular. Next Schulthess of Zurich took up the study and scientific treatment of spinal curvature. To this end he devised a series of exercising machines which were, however, too complex and too costly to be practicable. If my memory does not fail me, he had spent some $50,000 in building the machines which were actively in use in his clinic when I was with him. Throughout Germany, Sweden and Austria, the mechano-therapeutic institutes provided with the various forms of resistance apparatus devised by Zander and by Hertz found their greatest activity in the treatment of spinal curvature.

In France, Redard perhaps more than any other, has applied himself in this field and has advocated a system of forcible correction, with the patient in the prone position. Since I shall not touch on it again, I will say in passing, that with the patient lying face downward upon the table and under complete anesthesia, Redard makes traction by means of screw swivels on head and feet and at the same time attempts to correct the prominent ribs behind by means of a paddle-shaped lever. This, after being hooked by one end to the side of the table, is forced downward upon the prominent bones.

The Englishmen have written comparatively little and accomplished less in the treatment of scoliosis. Bernard Roth has devised a series of exercises and Jackson Clark a brace, all of them with view to correcting spinal deviations. They are in no way remarkable.

In this country a number of orthopedic specialists have devoted time and study to the problems presented by spinal curvature and the sum total of their results is by no means insignificant. Among others Truslow and Teschner have evolved systems of corrective gymnastics, Teschner's system of forced exercises being particularly interesting, while Bradford, Souter, Feiss, Hoke, and especially Lovett, have made many contributions to the literature of spinal curvature.

Finally, Lange, of Munich, has devised a particularly interesting and simple system of mechano-therapeutic apparatus for specialized resistance exercises, and Wullstein of Halle, has constructed an apparatus which I shall presently illustrate to you. In this machine all the elements which unite to make a spinal curvature can be reversed and the body held in this reversed position while a retentive plaster of paris cast is being applied.

(To be continued in June, 1912.)